



# A STUDY ON THE SKILL, KNOWLEDGE AND ATTITUDE OF TEACHER EDUCATORS FOR INCLUSIVE EDUCATION IN SOUTH AND NORTH 24 PARGANAS, WEST BENGAL

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## Introduction(Background and Rationale):

Employing high quality teachers is essential to educational success. Teachers, like students, must learn and practice their skills in order to excel in their trade. So, too, must teacher educators, charged as they are with ensuring the quality of novice teachers. *Educating Teachers for Diversity: Meeting the Challenge* (OECD 2010) identified a set of key themes that require further attention and discussion in the domain of teacher education for diversity. Among them was the importance of educating the teacher educators themselves. Teacher educators are entrusted with the crucial task of preparing student teachers and teachers to face their classrooms. Yet there is a surprisingly sparse knowledge base on how teacher educators are themselves prepared. The limited evidence available suggests that in many countries there is minimal oversight on who can become teacher educators and that the required course of study is often ill-defined. Consequently, little is known about teacher educators and how they are prepared to teach in general, especially with respect to diversity. The OECD report went on to identify the following policy orientation. Increase focus on the education of teacher educators, both broadly and for diversity in particular, in order to increase evidence of how they are prepared and how they in turn prepare student teachers and teachers (288-289). Competencies of teacher educators in this regard thus emerge as crucial. Unfortunately, a lack of research on the outcomes and impact of teacher educators and a lack of formal programmes dedicated to teacher educator preparation suggest that educational systems are falling short in a critical way, especially in the area of inclusive education. Interestingly enough though NCTE has recently issued a directive that only one teacher educator from general teacher education colleges would be trained by RCI and that person would take care of the compulsory subject of special education in his/her college, it may be noted that such professional knowledge emanated by a single teacher educator may contribute to enhancement of knowledge, but how far that may contribute to improvement of the contemporary scenario for developing competent teachers for a truly inclusive society remains a grey area. All teacher educators must possess adequate knowledge, skills, a necessary positive mindset or attitude and a certain degree of values in order to effectively develop teachers well equipped for addressing diversity and facilitating effective inclusion.

## Problem Statement:

Many studies have been done on competency of teachers as discussed in this proposal, but there seems to be very little done about competency of teacher educators, especially when it comes to inclusive education. There is also a lack of awareness that competencies of teacher educators largely differ from those of school teachers, the nature of job being very different. According to Smith (2005) in *Teacher educators' professional knowledge; how does it differ from teachers' professional knowledge*, unlike teachers, who are mainly required to be good practitioners, teacher educators are expected to be self-aware and to reflect and articulate tacit knowledge of teaching and make it available to teachers-to-be, thus bridging theory and practice. Teacher educators' professional knowledge is expected to be more comprehensive, rich and extensive, both in terms of the specific subject matter taught and in relation to areas such as didactics, pedagogy and psychology. Many questions go unanswered even today, like the exact nature of duty and responsibility of the teacher educators and how their work is constructed in our state, what competencies germane to teaching about teaching in inclusive settings do the teacher educators possess, what support is necessary in the professional development of teacher educators for preparing teachers for inclusive classrooms, and what is the role of teacher educators as both consumers and producers of knowledge on inclusive education.

Despite the basic nature of these questions, research literature to date does not provide satisfactory answers. The study aims at filling these gaps in our knowledge.

## Review of Related Literature:

Within the contemporary inclusive classrooms, teachers face increased pressure as their roles diversify, compared to previous generations (Avramidis, Bayliss, & Burden, 2000; Clayton, 1996; Forlin, 1997; Long, 1995; McKinnon & Gordon, 1999; Paterson & Graham, 2000; Schloss, 1992). Teachers have varied in their responses to these challenges (Westwood & Graham, 2003). Mainstream teachers are now called upon to be sensitive to the variety of modern classrooms and to

be able to rise to the challenge by adjusting their teaching styles in accordance with the multiplicity of learning styles they face (Peterson & Beloin, 1992). They are further required to be psychologically and practically prepared to take on the dynamic role of inclusive educator (Mullen, 2001), while being aware that making physical provision for students with disabilities is not as important as making attitudinal changes resulting in the removal of barriers to physical and educational access (Beattie, Anderson, & Antonak, 1997). It has been noted that the experience of being an inclusive educator is challenging enough to cause teachers to become physiologically and psychologically stressed (Whiting & Young, 1996). Fritz & Miller (1995) found that inclusion was an impossible obstacle for some teachers despite having received training. Researchers note that teachers may resist inclusive practices on account of inadequate training (Gickling & Theobald, 1975; Heiman, 2001; Hines & Johnston, 1996; Minke, Bear, Deemer, & Griffin, 1996). It would appear that teachers perceive themselves as unprepared for inclusive education because they lack appropriate training in this area (Bender, Vail, & Scott, 1995; Daane, Beirne-Smith, & Latham, 2000; Gans, 1987; Malone et al., 2001). Inadequate training relating to inclusive education, may result in lowered teacher confidence as they plan for inclusive education (Schumm, Vaughn, Gordon, & Rothlein, 1994; Whitworth, 1991).

It has thus been established by various studies that teacher education or training plays a vital role in developing competent teachers for inclusive settings and that the training imparted falls short in some way or the other. The importance of exploring the competencies of the teacher educators emerge as crucial in this context. However there seems to be very little research on the competencies of the teacher educators themselves.

Olena Ogienko PhD, professor assistant (docent) Department of Comparative Vocational Training Institute for Educational Studies & Adult Education of the Academy of Pedagogical Sciences of Ukraine and Angelina Rolyak PhD student Department of Comparative Vocational Training Institute for Education Studies & Adult Education of the Academy of Pedagogical Sciences of Ukraine, in their study titled "Model of Professional Teachers Competences Formation: European Dimension" (2008), point out that modern development of the pedagogical component of an educational environment leads to the necessity of the pedagogical education general paradigm modernization. Graduates from pedagogical educational institutions of today must be able to achieve the best results and comfort in their professional activity in a very short period of time. So it is necessary to expand such important for teaching profession concepts of "knowledge", "abilities" and "skills" with the additional categories. The notion of "competence" is such category which can enrich the abovementioned concepts with the practical side of their implementation. (pp.1-2). A competence approach, as clarified by scholars like Hutorsky A.V. (1996), Zyazyun I.A. (2007), Mitina L.M. (2008), and EFA (Education for All – the Quality Imperative, Hamburg, UNESCO Institute for Education, 2004) mean creation of a single system of aims, content and technologies in the process of teachers education from the point of view of formation of the basic professional competences. So competence approach in pedagogical education makes it possible to outline the circle of important knowledge, abilities and skills for teaching profession and to give the guidance for the teacher education programme content on their mastering, developing and using in practical activities.

Recent work by the European Commission has suggested that standards for teacher education or agreement on the competences required to work as teacher educators are still rare in most of its member states. Exceptions include Portugal, where teacher educator competences are specified by law, The Netherlands, which has defined a set of professional standards for teacher educators, and Austria, where a list of teacher educator competences is currently being prepared (European Commission, 2010). The establishment of an explicit set of competencies and standards would have the potential to decrease the fragmentation of teacher educator background and preparation. The European Commission's (2010, p. 6) initial draft of the competences required by teacher educators include:

- first order teacher competences (competence in teaching learners)
- second order teacher competences (competence in teaching about teaching)

- knowledge development (research)
- system competences
- transversal competences
- leadership competences

As both a political and personal topic, it has been argued that teaching for diversity poses special questions for teacher education and teacher educator preparation. This implies that the general competencies outlined above must be augmented by a specific focus on teaching for diversity and an open and continuing dialogue about what this entails. For example, Pollock et al (2010) identify three specific tensions experienced by teachers related to diversity issues during their teacher education programmes which need to be specifically addressed by their teacher educators:

1. The tension between theoretical and practice-based knowledge.
2. The tension between individual efficacy and the overwhelming scope of the issue.
3. The tension between the pursuit of personal development and professional development. These three tensions highlight areas of potential growth for teacher educators and give an example of how diversity issues might require specific additional competencies. It also suggests that teacher educator preparation should explicitly highlight new ways of thinking about diversity issues in teacher preparation and practice. This would naturally be an evolving process, where new research and emerging issues would be incorporated into both teacher educator preparation and practice in an ongoing manner.

From the studies discussed above, it is evident that crucial questions regarding the core competences of teacher educators who are entrusted with the task of preparing teachers for inclusive settings, come to the forefront. There is considerable dearth of research in the area, a gap that the proposed study aims at exploring by pinpointing core competences in the context of our nation. NCTE has identified 18 core competencies for teachers that has been highlighted by Professor Dave in his Introduction to NCTE's documents collectively titled *Competency based and Commitment Oriented Teacher Education for Quality School Education* (1998), a thorough reading of which reveals a sustained insistence on Skill, Knowledge and Attitude of Teachers for Professional and effective performance. Again, according to Smith (2005) in "*Teacher educators' professional knowledge: how does it differ from teachers' professional knowledge*", unlike teachers, who are mainly required to be good practitioners, teacher educators are expected to be self-aware and to reflect and articulate tacit knowledge of teaching and make it available to teachers-to-be, thus bridging theory and practice. Teacher educators' professional knowledge is expected to be more comprehensive, rich and extensive, both in terms of the specific subject matter taught and in relation to areas such as didactics, pedagogy and psychology. Teacher educators should engage in curriculum development and research, which is viewed as an indispensable part of their professional development. Unlike teachers, they are expected to be skilful in teaching learners of all age groups and categories and to present a high level of professional maturity and autonomy. Finally, they are to have a comprehensive understanding of the educational system that goes beyond their own personal teaching context, a factor crucial for preparing teachers for inclusive education. It is thus seen that the competency of knowledge and skill is highlighted for teacher educators in tandem with their attitude and Professional development. Thus the above mentioned three major competencies were finalised for the study. Thus, on exploring the competencies germane to the teacher education from different scholarly works and intense deliberations of experts, three key competences were identified, namely,

- i. **Knowledge** about inclusive education and children with special needs
- ii. **Skill** of addressing diversity and teaching in an inclusive class
- iii. **Attitude** towards inclusive education and children with special needs

#### Objectives

The present study has the following Objectives:

- i. To study the attitude, skill, and knowledge regarding inclusive education among teacher educators.
- ii. To study the difference in attitude, skill and knowledge regarding inclusive education between male and female teacher educators.
- iii. To study the difference in attitude, skill and knowledge regarding inclusive education between urban and rural teacher educators
- iv. To study the difference in attitude, skill and knowledge regarding inclusive education between teacher educators with and without personal experience with children/people with special needs.
- v. To study the difference in attitude, skill, knowledge and values regarding inclusive education between teacher educators who had studied Special Education as a compulsory or optional paper in B.Ed. or M.Ed. or M.A.(Education) and those teacher educators who had not studied Special Education in B.Ed., M.Ed. or M.A. (Education), the paper being optional in the course.

- vi. To study the relation between attitude, skill and knowledge regarding inclusive education of teacher educators and his/her years of teaching experience.

#### Hypotheses:

- H<sub>01</sub>: There is no significant mean difference in attitude towards inclusive education between urban and rural teacher educators.
- H<sub>02</sub>: There is no significant mean difference in skills regarding inclusive education between urban and rural teacher educators.
- H<sub>03</sub>: There is no significant mean difference in knowledge regarding inclusive education between urban and rural teacher educators.
- H<sub>04</sub>: There is no significant mean difference in attitude regarding inclusive education between male and female teacher educators.
- H<sub>05</sub>: There is no significant mean difference in skills regarding inclusive education between male and female teacher educators.
- H<sub>06</sub>: There is no significant mean difference in knowledge regarding inclusive education between male and female teacher educators.
- H<sub>07</sub>: There is no significant mean difference in attitude towards inclusive education between teacher educators who had studied Special Education as a compulsory or optional paper in B.Ed. or M.Ed. or M.A.(Education) and those teacher educators who had not studied Special Education in B.Ed., M.Ed. or M.A. (Education), the paper being optional in the course.
- H<sub>08</sub>: There is no significant mean difference in knowledge about inclusive education between teacher educators who had studied Special Education as a compulsory or optional paper in B.Ed. or M.Ed. or M.A.(Education) and those teacher educators who had not studied Special Education in B.Ed., M.Ed. or M.A. (Education), the paper being optional in the course.
- H<sub>09</sub>: There is no significant mean difference in skills regarding inclusive education between teacher educators who had studied Special Education as a compulsory or optional paper in B.Ed. or M.Ed. or M.A.(Education) and those teacher educators who had not studied Special Education in B.Ed., M.Ed. or M.A. (Education), the paper being optional in the course.
- H<sub>10</sub>: There is no significant mean difference in a teacher educator's knowledge about inclusive education between teacher educators with personal experience with physically challenged children and those without any personal experience with physically challenged children.
- H<sub>11</sub>: There is no significant mean difference in a teacher educator's skills regarding inclusive education between teacher educators with personal experience with physically challenged children and those without any personal experience with physically challenged children.
- H<sub>12</sub>: There is no significant mean difference in a teacher educator's attitude towards inclusive education between teacher educators with personal experience with physically challenged children and those without any personal experience with physically challenged children.
- H<sub>13</sub>: There is no relation between a teacher educator's attitude towards inclusive education and their years of teaching experience.
- H<sub>14</sub>: There is no relation between a teacher educator's knowledge about inclusive education and their years of teaching experience.
- H<sub>15</sub>: There is no relation between a teacher educator's skills regarding inclusive education and their years of teaching experience.

#### Delimitation of the Study:

Skill and knowledge about physically and mentally challenged children would be only considered in this study since addressing minority and otherwise marginalized children calls for a different set of skills altogether that is difficult to be dealt with in the limited scope of a doctoral research. Since it is not possible to cover each and every district of the state, representative districts from east, south, west and northern parts have been selected for the study.

#### Sample:

150 teacher educators, both full time and contractual or part time, from different public and private teacher education institutes of the districts of North and South 24 Parganas in the state of West Bengal was selected randomly.

#### Tool:

One standardized tool was used and 2 Questionnaires have been prepared for each of the three basic competencies mentioned above.

- I. In case of Knowledge, a standardized tool developed by Nanda & Panigrahi (2011) was used. The tool has 3 major dimensions of knowledge of students' disability, namely

- a. Conception [item 1.1-1.24]
- b. Etiology [item 2.1-2.22]
- c. Management [item 3-3.16]

The first dimension has 24 questions, the second 22 and the third dimension has 16 questions, each with Yes/No options. The content validity has been established by three experts in the field.

- ii. For the Attitude competency a standardized tool titled TASTIE –SA [Teacher Attitude Scale towards Inclusive Education] developed by Sood&Anand(2011) of Harprasad Institute of Behavioral Studies was adopted for the survey. Certain modifications of the scale were made on the basis of need of the present study after in-depth analysis of previous research studies and critical discussions with experts. The tool thus modified had 48 questions with two options 'yes' and 'no'. Values of 2 and 1 were ascribed to the options 'yes' and 'no' respectively. The five broad areas of the attitude scale so modified are:

- a. Psychological/Behavioral Aspects of Inclusive Education [item no - 2,4,5,6,7,9,13,17, 25, 27,28, 34,35, 39]
- b. Social and Parents-Related Aspects of Inclusive Education [item no.31,32,33,38, 24, 26, 40]
- c. Personal Experience and Exposure/Knowledge related Aspects of Inclusive Education [item no 1,3,8,10,11,12,15,16]
- d. Curricular and Co-curricular Aspects of Inclusive Education [item no 37,14,20,21, 23, 29, 30,36, 37]
- e. Administrative Aspects of Inclusive Education [item no 18, 19, 22]

The modified self-administering and self-reporting questionnaire with these aspects was a two point scale. The questions were translated into Bengali for the benefit of the teachers and a few questions were added. The tool was tested for reliability and validity. The reliability of the scale was established by – (a) Test-retest Method and (b) Internal Consistency of the scale. The product moment correlation 'r', that is the reliability index, was 0.82. Thus the scale was found to be reliable. The internal consistency of the scale was judged by computing the coefficients of correlation between total score on the scale and score on each of the five areas of the scale. The values so deducted established the reliability of the scale. The validity of the scale was ascertained on the basis of content validity, cross validity, Item validity and Intrinsic validity. Item validity was established since only those items with t-value of 1.75 or above were retained in the final form of the scale. The intrinsic validity for the scale was ascertained by ensuring internal consistency of the scale through product moment correlation method. The test retest reliability coefficient of 0.82 established the intrinsic validity of the scale.

- iii. The tool regarding Skills has been developed by the researcher in consultation with the experts in the field. The tool has 30 items. It has 5 dimensions, namely

- a. Classroom Management [item 1-7]
- b. Time Management [item 8-14]
- c. Inclusive Instruction [item 9-19; 25-30]
- d. Collaboration [item 23-24]
- e. Behaviour Management [item 20-22]

There are 7 items for the first dimension, 7 for the second, 15 for the third, 2 for the fourth and 2 for the fifth dimension, each with Yes/No options. The tool has been tested for reliability and validity. The reliability index is 0.83 and the test retest reliability coefficient is 0.82 that establish the intrinsic validity of the scale.

#### Data Collection Technique:

The questionnaires were personally administered to the teacher educators and explained wherever necessary. Some may also be mailed to respondents. Sufficient time would be given to the respondents for responses well thought over. Telephonic conversation will also be allowed for any clarification or discussions. The data so obtained will be analyzed using suitable software.

#### Variables:

Dependent Variables –Teacher educators' attitude towards inclusive education  
Teacher educators' knowledge of inclusive education  
Teacher educators' skill for inclusive education

Independent Variables- Social relationship with any differently abled person.

Years of Teaching Experience

Gender

Habitat [rural or urban]

Educational Qualification [Studied paper on Special Education or not]

#### Operational Definition of Variables:

The operational definition of variables are as follows-

**Competency** – Important knowledge, abilities, values and skills for teaching teachers.

**Skill-** The learned ability to carry out a task with pre-determined results often within a given amount of time, energy, or both, i.e., the abilities that one possesses

**Attitude-** A predisposition or a tendency to respond positively or negatively towards a certain idea, object, person, or situation. Attitude influences an individual's choice of action, and responses to challenges, incentives and rewards.

**Knowledge-** Knowledge is a familiarity, awareness or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning. Knowledge can refer to a theoretical or practical understanding of a subject.

#### Procedure:

The questionnaires were personally administered or sent by mail to the respondents and were explained in detail in person or over phone in case of any difficulty. I was explained and also written on the top of each tool that the responses would be used for research only and no teacher educator would be judged on the basis of their responses. I was also clearly mentioned that the respondents' identity would never be disclosed. Sufficient time was given to each respondent for thoughtful and honest response. The responses were collected after seven days.

#### Analysis:

##### Measure of Correlation

It was to be examined whether any correlation exists between years of teaching experience, or years of experience of handling disabled children, and skill, knowledge, attitude, as listed in the table below:-

Case	Detect correlation between
1	Years of teaching experience and skill
2	Years of teaching experience and knowledge
3	Years of teaching experience and attitude
4	Years of teaching experience of handling disabled children and skill
5	Years of teaching experience of handling disabled children and knowledge
6	Years of teaching experience of handling disabled children and attitude

For each of these six cases, we performed the following:-

1. Considered values of dependent (X) and independent variables (Y) from the sample data
2. Computed Product Moment Correlation Coefficient

The results and corresponding interpretations are summarized in the table below:

Case	Dependent Variable (Y)	Independent Variable (X)	Computed value of Product Moment Correlation Coefficient	Inference
1	Skill	Years of teaching experience	0.053401	Since the value of correlation coefficient is between 0 and 0.2, we conclude that no correlation exists in this case
2	Knowledge	Years of teaching experience	0.010015	Since the value of correlation coefficient is between 0 and 0.2, we conclude that no correlation exists in this case
3	Attitude	Years of teaching experience	0.015155	Since the value of correlation coefficient is between 0 and 0.2, we conclude that no correlation exists in this case
4	Skill	Years of experience of handling disabled children	0.431821	Since the value of correlation coefficient is between 0.41 and 0.7, we conclude that moderate positive correlation exists in this case
5	Knowledge	Years of experience of handling disabled children	0.055076	Since the value of correlation coefficient is between 0.41 and 0.7, we conclude that moderate positive correlation exists in this case
6	Attitude	Years of experience of handling disabled children	0.504015	Since the value of correlation coefficient is between 0 and 0.2, we conclude that no correlation exists in this case



**T Tests**

The T test was also applied to the data collected so far. T test was applied on the scores obtained by teachers to test the following null hypotheses against corresponding alternative hypotheses:

[In the case of Alternative hypothesis, the hypothesis is specified as  $H_{xy}$ , where x denotes alternative number and y denotes the test number corresponding to the alternative hypotheses. Eg:  $H_{23}$  denotes alternative hypothesis for alternative hypothesis 2 for test number 3 or the third test as shown in the sequence below]:

Null Hypothesis	Alternative Hypothesis 1	Alternative Hypothesis 2
$H_{01}$ : There is no difference in <b>skill</b> between Rural Teacher Educators and Urban Teacher Educators	$H_{11}$ : Skill of Rural Teacher Educators is better than Urban Teacher Educators	$H_{21}$ : Skill of Rural Teacher Educators is poorer than Urban Teacher Educators
$H_{02}$ : There is no difference in <b>knowledge</b> between Urban Teacher Educators and Rural Teacher Educators	$H_{12}$ : Knowledge of Urban Teacher Educators is better than Rural Teacher Educators	$H_{22}$ : Knowledge of Urban Teacher Educators is poorer than Rural Teacher Educators
$H_{03}$ : There is no difference in <b>attitude</b> between Urban Teacher Educators and Rural Teacher Educators	$H_{13}$ : Attitude of Urban Teacher Educators is better than Rural Teacher Educators	$H_{23}$ : Attitude of Urban Teacher Educators is poorer than Rural Teacher Educators
$H_{04}$ : There is no difference in <b>skill</b> between Male Teacher Educators and Female Teacher Educators	$H_{14}$ : Skill of Male Teacher Educators is better than Female Teacher Educators	$H_{24}$ : Skill of Male Teacher Educators is poorer than Female Teacher Educators
$H_{05}$ : There is no difference in <b>knowledge</b> between Male Teacher Educators and Female Teacher Educators	$H_{15}$ : Knowledge of Male Teacher Educators is better than Female Teacher Educators	$H_{25}$ : Knowledge of Male Teacher Educators is poorer than Female Teacher Educators
$H_{06}$ : There is no difference in <b>attitude</b> between Male Teacher Educators and Female Teacher Educators	$H_{16}$ : Attitude of Male Teacher Educators is better than Female Teacher Educators	$H_{26}$ : Attitude of Male Teacher Educators is poorer than Female Teacher Educators

For each of the above hypotheses, we compute the value of t statistic as follows:-  
Let  $x_1$  and  $x_2$  denote the scores of the two sets.

$\bar{x}_1$  (mean) and  $\bar{x}_2$  (mean) are sample means from the two sets.  $n_1$  and  $n_2$  are the sample sizes of the two sets.

T statistic is computed as follows:

$$T = (\bar{x}_1(\text{mean}) - \bar{x}_2(\text{mean})) / (s \sqrt{XN})$$

$$N = \text{square root } (1/n_1 + 1/n_2)$$

$$s = \text{square root } ((X_1 + X_2) / (n_1 + n_2 - 2))$$

$$X_1 = \sum x_1^2 - n_1 (\bar{x}_1(\text{mean}))^2$$

$$X_2 = \sum x_2^2 - n_2 (\bar{x}_2(\text{mean}))^2$$

Tabulated value of t at 1% & 0.5% confidence levels are noted as follows:-

$$T_{0.01,\infty} = 2.326, T_{0.005,\infty} = 2.576$$

Please note that degrees of freedom ( $n_1 + n_2 - 2$ ), for the sample sizes corresponding to each of the hypotheses are greater than 120 (please refer to  $n_1$  and  $n_2$  values in Annexures I to VI). In Table 12 of *Biometrika Tables for Statisticians, Vol. 1*, degrees of freedom greater than 120 is marked as infinity ( $\infty$ ). Hence we have noted tabulated t values with degrees of freedom as  $\infty$ .

Values of T statistic (rounded off to 3 decimal places) and corresponding inferences are summarized in the table below:

Computed  $T > T_{0.01,\infty}$

Hypothesis	Computed T value	Observation	Inference
$H_{01}$	-2.087	Computed T  < $T_{0.005,\infty}$	$H_{01}$ is accepted
$H_{02}$	2.347	Computed T > $T_{0.01,\infty}$	$H_{02}$ is rejected in favor of $H_{12}$
$H_{03}$	0.215	Computed T  < $T_{0.005,\infty}$	$H_{03}$ is accepted
$H_{04}$	0.261	Computed T  < $T_{0.005,\infty}$	$H_{04}$ is accepted
$H_{05}$	-1.392	Computed T  < $T_{0.005,\infty}$	$H_{05}$ is accepted
$H_{06}$	2.369	Computed T > $T_{0.01,\infty}$	$H_{06}$ is rejected in favor of $H_{16}$

**ANOVA**

Analysis of Variance (ANOVA) was conducted to examine whether personal experience with differently abled children, and having studied theory paper in Special Education, has any influence on the following:-

1. teacher's skill
2. teacher's favourable attitude towards inclusive education
3. teacher's knowledge

For each of these cases, computed F values have been compared against the following tabulated F value:-

Value of F with Degrees of Freedom 1,1 at  $\alpha$ -level 0.05 = 161.4

Depending on the nature of items in the questionnaires used for measuring attitude, skill and knowledge, a certain benchmark or cut off score could be determined for ascertaining favourable or non favourable attitude, possession or non-possession of skill and knowledge among teacher educators. In this study 50 was the cutoff score for attitude, 40 for skill and 50 for knowledge. Teacher educators scoring equal to or above these were considered as favourable, possessing skill and knowledge respectively.

**Case 1**

60 teacher educators, whose survey response have been 'good skill', are categorized as follows:

	Teachers with personal experience	Teachers without personal experience	Total
Teachers with paper in Special Education	25	11	36
Teachers without paper in Special Education	18	6	24
Total	43	17	60

ANOVA calculations are as follows:-

$$\text{Sum of squares of raw values} = 1106$$

$$\text{Correction Factor} = (60)^2 / (2 \times 2) = 900$$

$$\text{Total SS (Sum of Square)} = 1106 - 900 = 206$$

$$\text{SS due to Paper} = [(36)^2 + (24)^2] / 2 - 900 = 36$$

$$\text{SS due to Personal Experience} = [(43)^2 + (17)^2] / 2 - 900 = 169$$

$$\text{SSE (Sum of Squares due to Error)} = 206 - 36 - 169 = 1$$

F values are computed as follows

Factors	Degrees of Freedom	Sum of Square	Mean Square	Observed F
Paper in Special Education	1	36	36	36.00
Personal Experience	1	169	169	169.00
Error	1	1	1	

Thus it is observed that:-

F value for the factor 'Paper in Special Education' < tabulated F value.

F value for the factor 'Personal Experience' > tabulated F value.

Hence the Analysis of Variance indicates that personal experience with differently abled children has a positive influence on a teacher's skill. But no such conclusion can be drawn for paper in Special Education.

**Case 2**

86 teacher educators, whose survey response have been 'favourable', are categorized as follows:-

	Teachers with personal experience	Teachers without personal experience	Total
Teacher educators with paper in Special Education	32	13	45
Teacher educators without paper in Special Education	29	12	41
Total	61	25	86

ANOVA calculations are as follows:-

$$\text{Sum of squares of raw values} = 2178$$

$$\text{Correction Factor} = (86)^2 / (2 \times 2) = 1849$$

$$\text{Total SS (Sum of Square)} = 2178 - 1849 = 329$$

SS due to Paper =  $[(45)^2 + (41)^2] / 2 - 1849 = 4$   
 SS due to Personal Experience =  $[(61)^2 + (25)^2] / 2 - 1849 = 324$   
 SSE (Sum of Squares due to Error) =  $329 - 4 - 1849 = 1$

F values are computed as follows

Factors	Degrees of Freedom	Sum of Square	Mean Square	Observed F
Paper in Special Education	1	4	4	4.00
Personal Experience	1	324	324	324.00
Error	1	1	1	

Thus it is observed that-  
 F value for the factor 'Paper in Special Education' < tabulated F value.  
 F value for the factor 'Personal Experience' > tabulated F value.

Hence the Analysis of Variance indicates that personal experience with differently abled children has a positive influence on a teacher's favourable attitude towards inclusive education. But no such conclusion can be drawn for paper in Special Education.

### Case 3

109 teacher educators, whose survey response have been 'good knowledge', are categorized as follows:-

	Teachers with personal experience	Teachers without personal experience	Total
Teacher educators with paper in Special Education	37	28	65
Teacher educators without paper in Special Education	27	17	44
Total	64	45	109

ANOVA calculations are as follows:-  
 Sum of squares of raw values = 3171  
 Correction Factor =  $(109)^2 / (2 \times 2) = 2970.25$   
 Total SS (Sum of Square) =  $3171 - 2970.25 = 200.75$   
 SS due to Paper =  $[(65)^2 + (44)^2] / 2 - 2970.25 = 110.25$   
 SS due to Personal Experience =  $[(64)^2 + (44)^2] / 2 - 2970.25 = 90.25$   
 SSE (Sum of Squares due to Error) =  $200.75 - 110.25 - 90.25 = 0.25$

F values are computed as follows

Factors	Degrees of Freedom	Sum of Square	Mean Square	Observed F
Paper in Special Education	1	110.25	110.25	441.00
Personal Experience	1	90.25	90.25	361.00
Error	1	0.25	0.25	

Thus it is observed that -  
 F value for the factor 'Paper in Special Education' > tabulated F value.  
 F value for the factor 'Personal Experience' > tabulated F value.  
 Hence the Analysis of Variance indicates that both the factors, i.e. personal experience with differently abled children, and paper in Special Education have positive influence on a teacher's knowledge.

### Discussion:

It is evident from the analysis of data above that teacher educators have not been developed so far with inclusive education and inclusive society in mind. The need for inclusive education being felt decades ago the teacher education curriculum was revised nationwide wisely and appropriately but the nature and limitations of the very ones who were entrusted with the responsibility of transacting that curriculum were not addressed adequately. It is seen that gender is not a crucial factor in difference in knowledge or skill regarding inclusive education though the female educators are found to be attitudinally a little more favourable towards SEN children and inclusion than their male counterparts. Again rural or urban habitat do not influence skill or attitude towards the SEN children or their inclusion, though knowledge of urban educators was better than their rural counterparts. This could be attributed to superstitions and related lores that incite fear and false beliefs dominant in rural areas. People with special needs are often perceived as cursed or devils in human form as revealed from informal discussion with respondents from rural areas. Personal experience with people with special needs was found to be crucial in fostering favourable attitude, skill and knowledge to some extent about inclusion and its needs. The recent revision in teacher education curriculum by NCTE has very appropriately incorporated engagement with field or practicum in a paper on preparing inclusive schools and yet the grey area to be explored remains as to the nature of engagement that the teacher education institutes would be able to provide if the teacher educators and administra-

tors themselves are totally oblivious to the needs, nature and importance of inclusive education. As revealed from this study most teacher educators who have already got their secure jobs have been groomed in the traditional curriculum and may possess theoretical knowledge to some extent but the doors of the mind are closed due to poor attitude and a dismal level of skill when it comes to inclusive education. Workshops arranged by RCI are trying to sensitize them but how far the teacher educators are sincere about these workshops or sensitization programs or how far these programs are effective in developing skills necessary for preparing teachers of a better and truly inclusive nation remains to be investigated and explored. This study brings to the forefront certain areas that need to be investigated in future. It is almost like thinking of a beautiful garden which would benefit the nation with the gardener's competency in a grey zone. The gardener must be a killed one with a heart full of empathy and positive attitude to tend to the saplings which are supposed to develop into trees providing shade and nutrition to millions of tender flowers or school children for a truly inclusive society. If the trees or the teachers remain equipped with bookish knowledge with no competent teacher educator to follow as a role model, the future of the society is bleak.

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